STEM STRATEGY KEY PERFORMANCE INDICATORS

Introduction

This paper sets out the Key Performance Indicators that will be used to measure and monitor progress with delivery of the Scottish Government's STEM Education and Training Strategy published in October 2017. We have identified a selection of indicators that relate most closely to the key changes that we want to see resulting from delivery of the actions set out in the strategy. There are 18 in total. We will also be collecting and analysing a much broader range of information about STEM education and training issues and we will publish this analysis in the STEM strategy annual report. The first of these is due in November 2018.

Where well-established data exists and where it is appropriate, we have set stretch aims for the proposed indicators. For others, either further data collection and analysis is required to establish baselines or they do not lend themselves to specific stretch aims and it is more appropriate to set a high level direction of travel only. Where it is needed, further data collection and analysis will be completed during the first year of implementation of the strategy. We will also keep the indicators under review as we improve our data and understanding about the STEM skills pipeline in Scotland.

We have selected indicators that relate to the actions in the strategy so that, where possible, they primarily reflect progress as a result of the actions that will be taken and are not significantly influenced by other external factors such as demographic and general labour market changes. Where possible, we have chosen indicators that are based on existing data sets and publications. However, in some cases, new analytical activity will be required.

The 18 indicators and the data sources for each are set out below under the six high level changes that we expect to see as a result of the strategy.

I. Increases in the proportion of people undertaking STEM related learning, engagement, study and training across all sectors including in school-level qualifications and awards, and participation in apprenticeship programmes. (Excellence and Inspiration)

* Meet Initial Teacher Education student intake targets for all STEM subjects. *[Data Source: Higher Education Statistics Agency's student data]*

* Increase the number of passes at SCQF level 5 in Mathematics by 10% by 2022. *[Data Source: Scottish Qualifications Authority National Qualifications data]*

* Increase overall provision of Foundation Apprenticeship opportunities to 5,000 new starts by 2019 and expand provision and Foundation Apprenticeship opportunities across all Scottish secondary schools. *[Data Source: Skills Development Scotland annual apprenticeship statistics publication]*

* Increase the number of apprenticeship opportunities in STEM related subjects at SCQF Level 9 and above. *[Data Source: Skills Development Scotland annual apprenticeship statistics publication]*

* Increase the proportion of those who successfully completed a recognised qualification at college in a STEM subject. *[Data Source: Scottish Funding Council's FES data]*

* Increase the proportion of Scottish Domiciled qualifiers on Full-time First Degree STEM courses. *[Data Source: Higher Education Statistics Agency's student data]*

* Increase in the number of participants in STEM related Youth and Adult Achievement awards. *[Data Source: Youth Awards & Adult Achievement Awards]*

II. Increased practitioner confidence in STEM learning in the early years, primary years and in CLD settings and increased practitioner engagement in STEM professional learning opportunities. (Excellence)

* Increase the cumulative hours of STEM professional learning accessed by early years, schools, college and CLD practitioners annually. *[Data Source: Needs to be established as this information is not currently collected across all programmes and sectors]*

III. Significant reductions in the equity gaps in participation and achievement in STEM learning, engagement, study, courses and training across all sectors in relation to gender, deprivation, rurality, race, disability and for care leavers. (Equity)

* Reduce the gap between the percentage of school leavers with 1 or more award in STEM subjects at SCQF level 6 or better from the least and most deprived SIMD quintiles to 31 percentage points by 2020 and to 25 percentage points by 2022. *[Data Source: School Leaver Statistics]*

* Improve the gender balance in attainment in key STEM related subjects at SCQF level 6 by increasing the number of females passing Physics by 15% and Computing by 20%, by 2022. *[Data Source: Scottish Qualifications Authority National Qualifications data]*

* Improve the gender balance in STEM subjects studied at college and university. *[Data Source: Scottish Funding Council's Gender Action Plan]*

* Increase gender balance in the uptake of STEM related Foundation Apprenticeship opportunities in the senior phase of school. *[Data Source: Skills Development Scotland annual Equality Action Plan report]*

* Increase the proportion of schools from most deprived quintile that receive a quality STEM engagement experience from funded Science Centres. [*Data*

Source: Science Centre quarterly and annual reports & Annual Science Festival reports]

* Increase the number of members of community groups from the most deprived or rural areas participating in quality engagement with Science Centres and festivals to 10,000 by 2022. [*Data Source: Science Centre quarterly and annual reports & Annual Science Festival reports]*

IV. Increased numbers of people who understand the benefits and value of STEM for themselves, their families and their communities. (Inspiration)

* Increase the proportion of young people who say they feel studying STEM is important for them and/or for their future careers in the Young People in Scotland Survey. *[Data Source: Young People in Scotland Survey]*

V. Increased collaboration between schools, colleges, universities and employers (Connection)

* Increase the number of employers engaged with education to support young people of all ages to understand STEM career opportunities and develop skills for work (including career advice, work inspiration, work experience placements, etc.) *[Data Source: DYW Regional Group KPI reports (twice a year)]*

VI. Increased employment in STEM-related occupations and employers are more satisfied with the STEM skills and capability of the people they employ from schools, colleges, universities and from apprenticeship programmes. (Connection)

* Increase the numbers of placements and internships with employers for college learners within STEM curricular areas. *[Data Source: Needs be established]*

* Reduce the proportion of STEM employers in Scotland experiencing skills shortages. *[Data Source: UK Employer Skills Survey]*